

WATERS in Action

Enabling Informed Decision-Making

WATERS Forum

Ronald Reagan Building, Washington DC

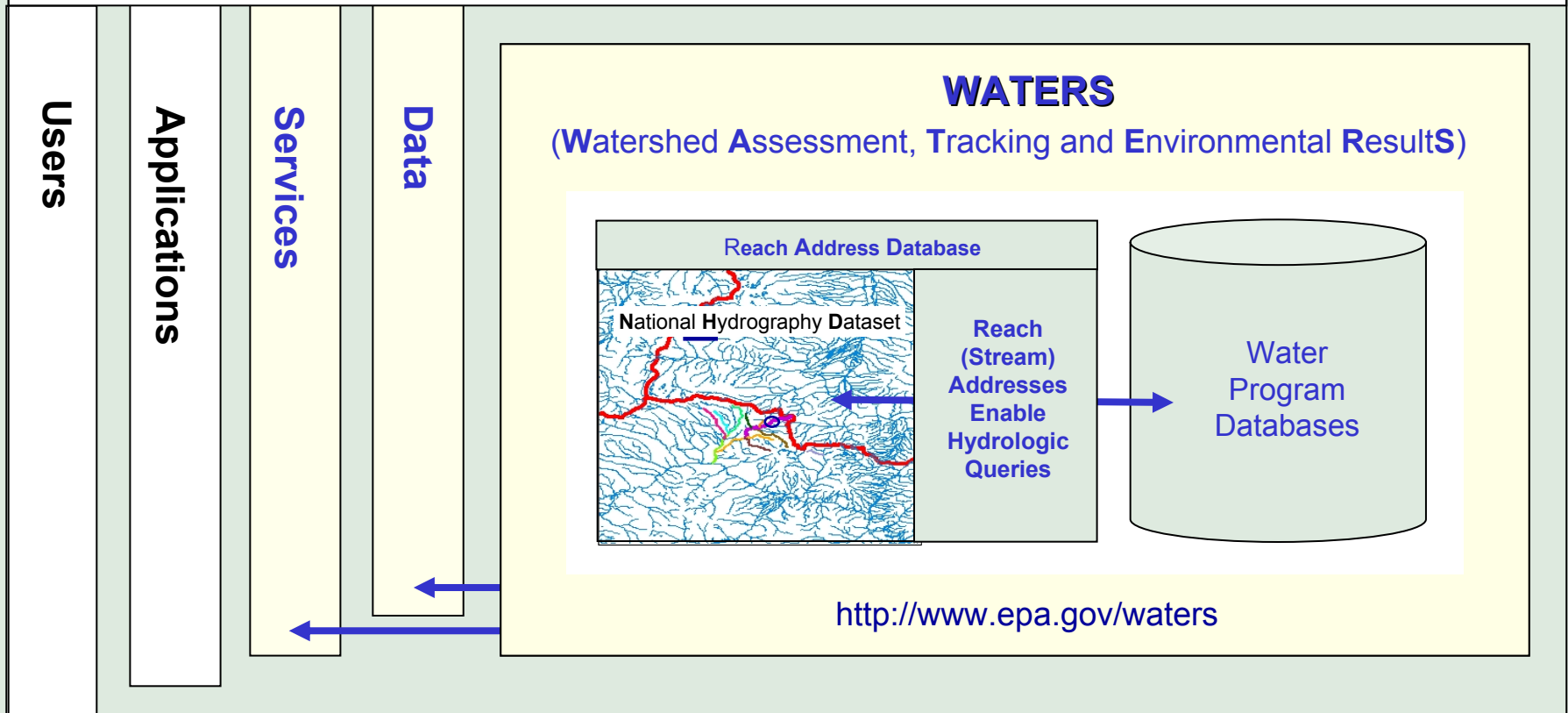
December 4, 2003





WATERS *within the* EPA Enterprise Architecture

EPA Enterprise Architecture



What is the National Hydrography Dataset (NHD)?

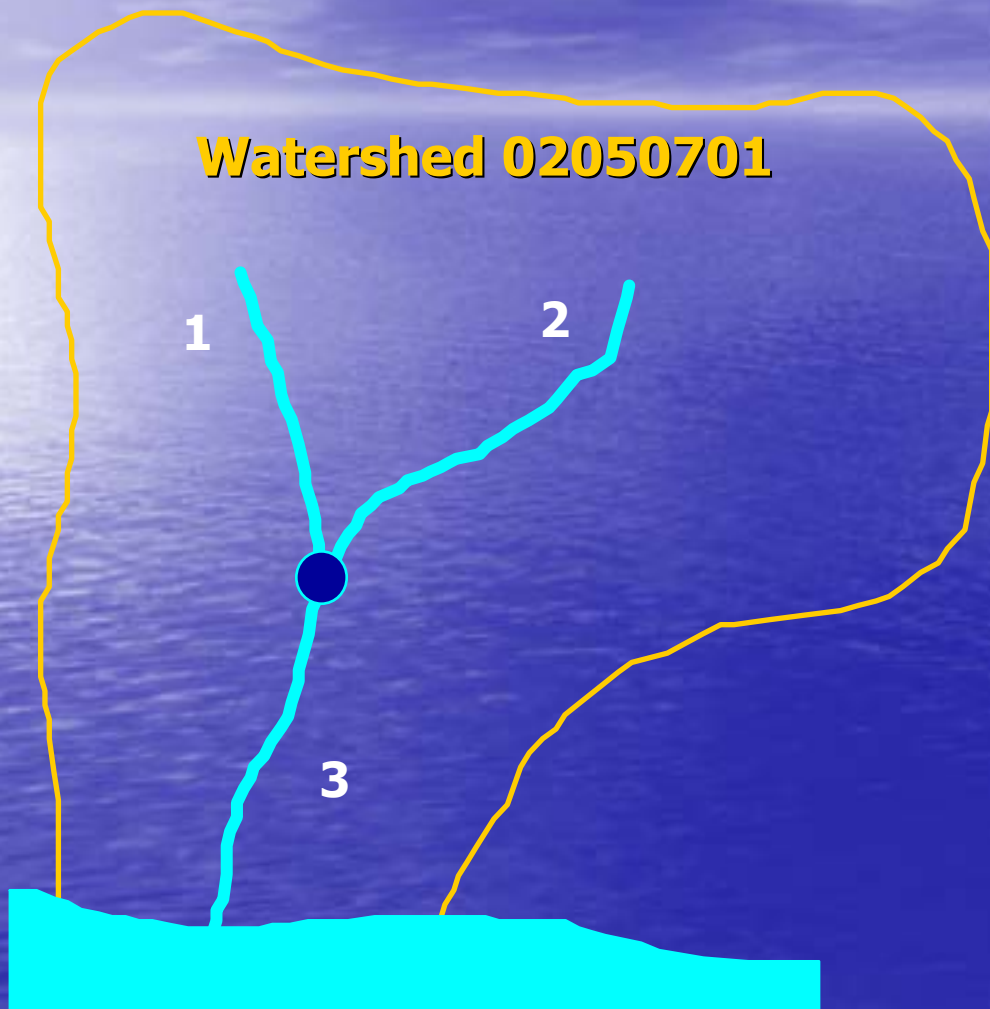
A framework dataset that includes:

- Hydrographic features for making maps
- A national stream addressing system
- A modeling network for navigating upstream/downstream
- A maintenance infrastructure



Data and information available at
<http://nhd.usgs.gov>

What are NHD Reaches?



Watershed 02050701
contains 3 NHD reaches:

- **02050701000001**
- **02050701000002**
- **02050701000003**

which provide the
framework for reach
(stream) addresses in the
same manner that streets
do for street addresses

Data Accessible Through WATERS

Through 2002

- Impaired Waters
- Water Quality Standards
- Assessed Waters
- Beaches
- Sewage No Discharge Zones
- Nutrient Stations
- Fish Consumption Advisories

2003 Additions

- Water Quality Stations
- National Estuary Programs
- Permitted Dischargers
- Nonpoint Source Projects
- Drinking Water Intakes
- Drinking Water Wells
- Source Water Areas

- Linked to the NHD
- Not linked to the NHD

The WATERS Framework

Enables program integration based upon hydrography

- Spatial coincidence – features that exist at the *same location* on the network
- Spatial proximity – features that are *upstream or downstream* from a location on the network

Uses of WATERS

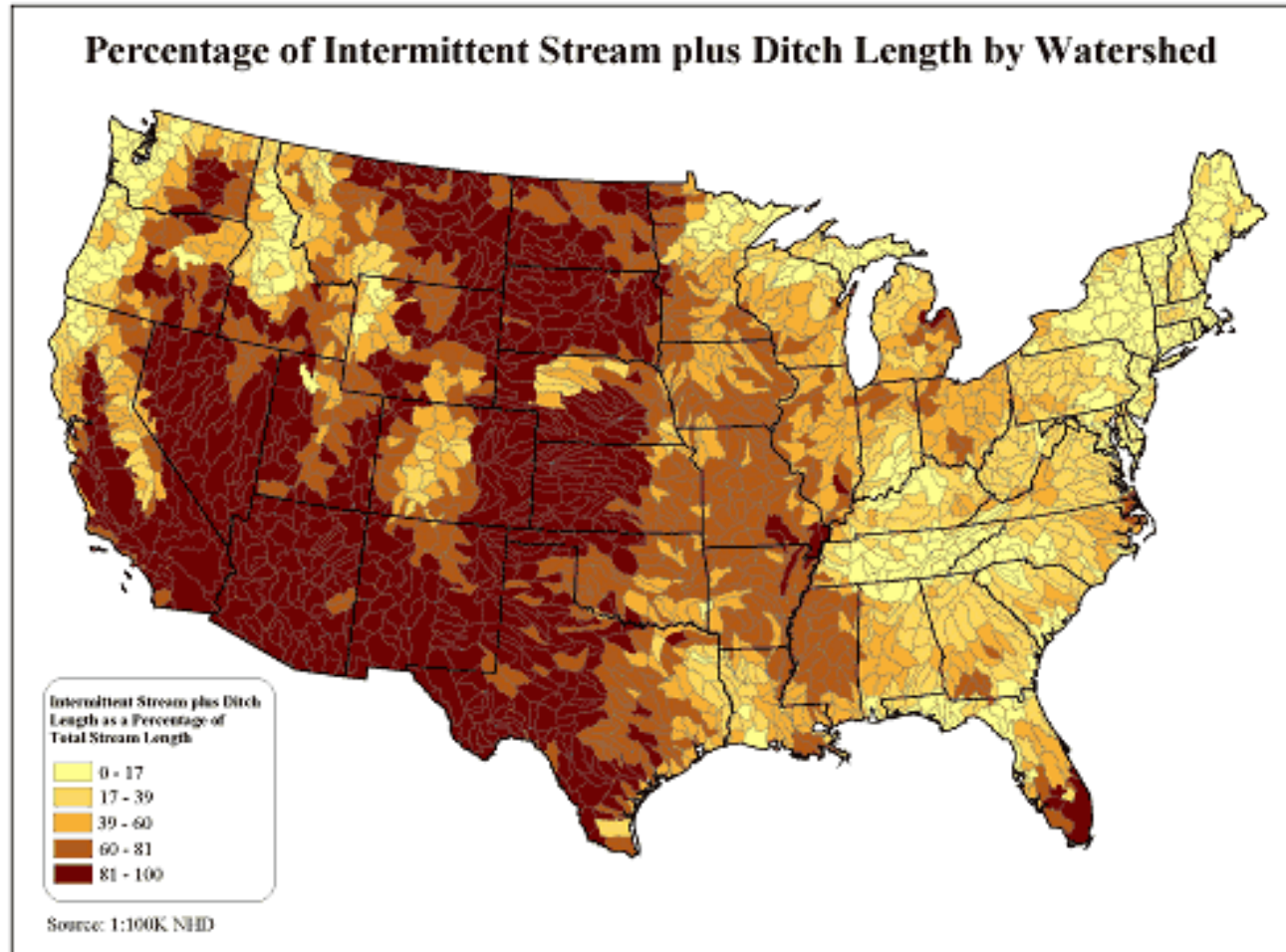
- Government Performance Measurements
 - Over half of OW GPRA measures require WATERS
- Reports to Congress
 - National Water Quality Inventory
 - Combined Sewer Overflows
- Regulatory Development
- Program Management
- Support to State Programs

Regulatory Development

- National Policy alternative analysis driven by the SWANCC Supreme Court Decision concerning navigable waters and isolated wetlands
- Assessed the impact of redefining “navigable waters” to Clean Water Act Programs

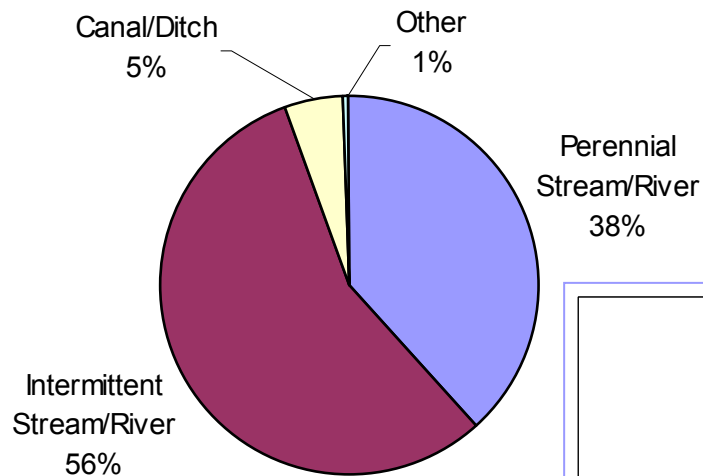
Analysis Results

Scenario 1: Intermittent Streams and Ditches



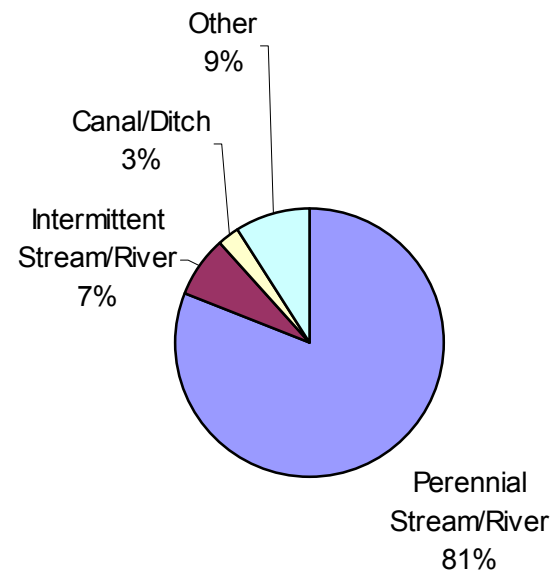
Analysis Results

Distribution of Surface Water Types in the NHD



Impact of Scenario 1
on Drinking Water
supplies

Drinking Water Intakes by Surface Water Type

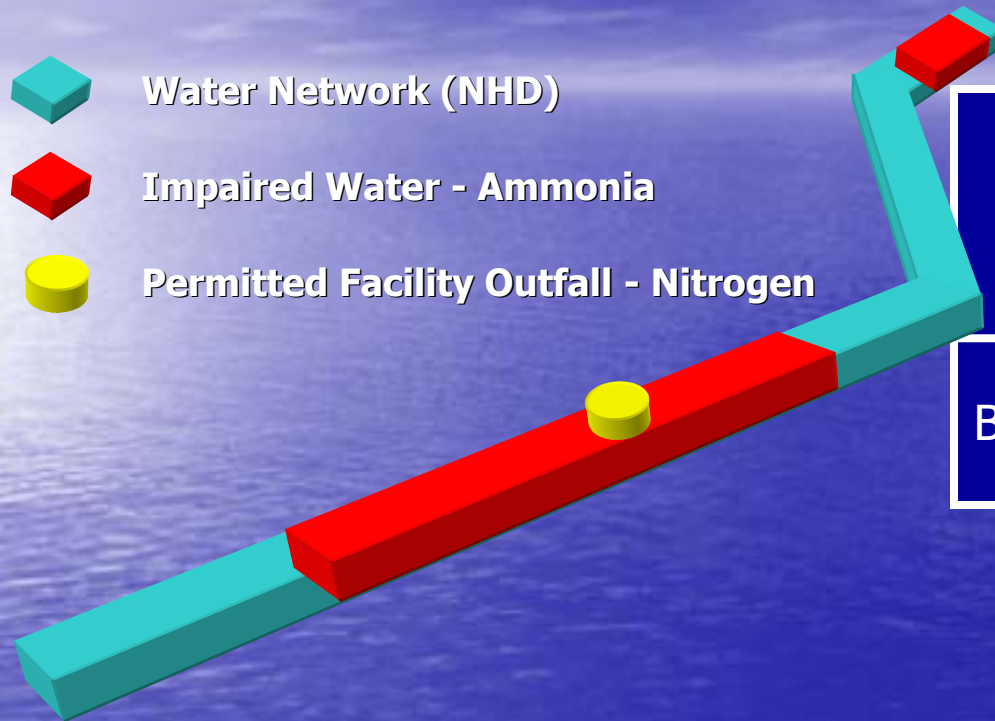


Effluent Guideline Screening

based on impaired waters

- Prioritize re-examination of guidelines based on possible environmental impact
- Compare Permit Compliance System discharge parameters of facilities within various industrial sectors to impaired waters

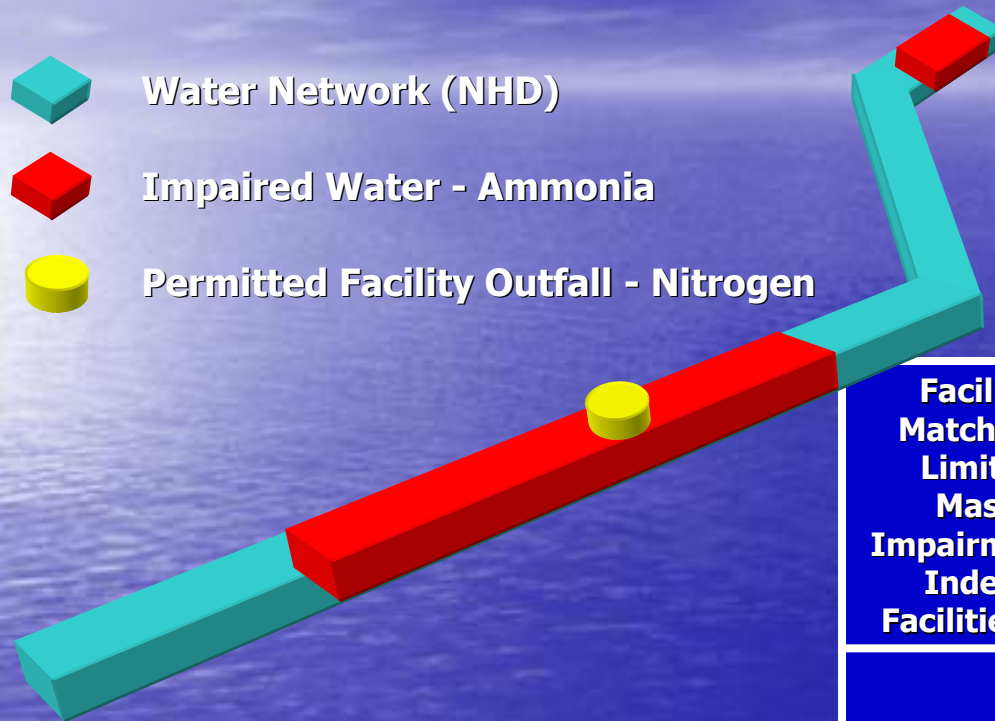
Effluent Guideline Screening Results based on impaired waters



LIST ID	Impairment	Master Impairment
BPJC06	Ammonia	Nutrients

NPDES ID	Parameter	SIC Code Description
0031500	Nitrogen, Ammonia Total (as N)	Carpets and Rugs

Effluent Guideline Screening Results based on impaired waters

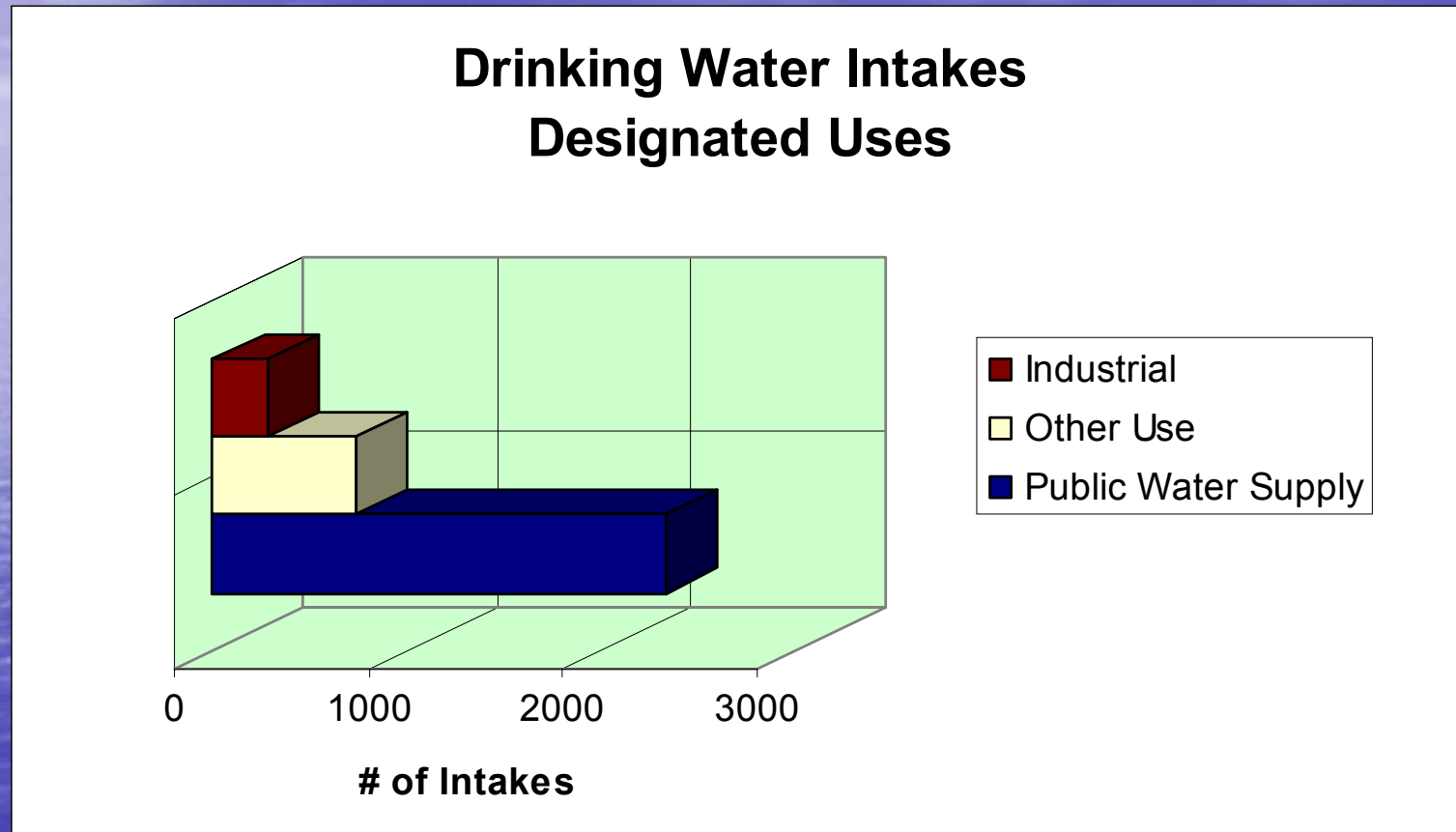


Facilities Matched by Limits to Master Impairment by Indexed Facilities (%)	Total Facilities	SIC Code Description
55	23	Rolling, Drawing, and Extruding of Nonferrous Metals, Except Copper and Aluminum
46	24	Flat Glass
45	23	Carpets and Rugs
42	38	Cold-Rolled Steel Sheet, Strip, and Bars
41	188	Steel Works, Blast Furnaces

Integrated Program Management

- Are state's water quality standards appropriately designating public water supplies?
- Analyzed the overlap between surface drinking water intakes with designated uses of public water supply

Integrated Program Management



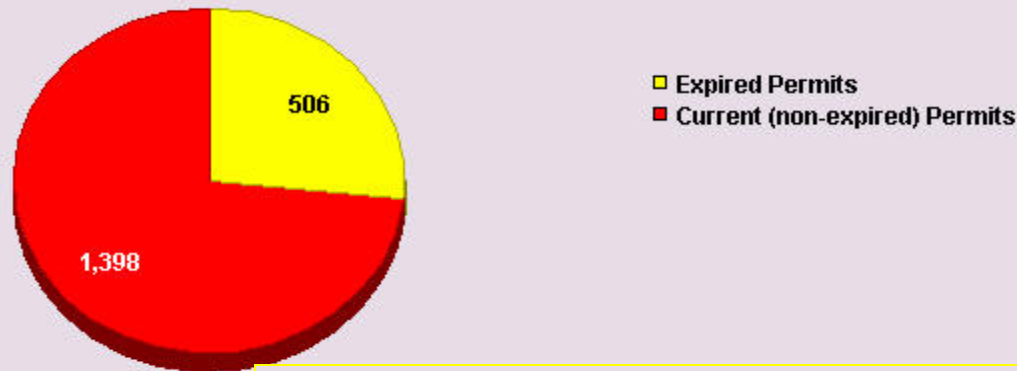
Majority of Drinking Water Intakes Were Located on Waters with a Designated Use of Public Water Supply

Permit Characterization

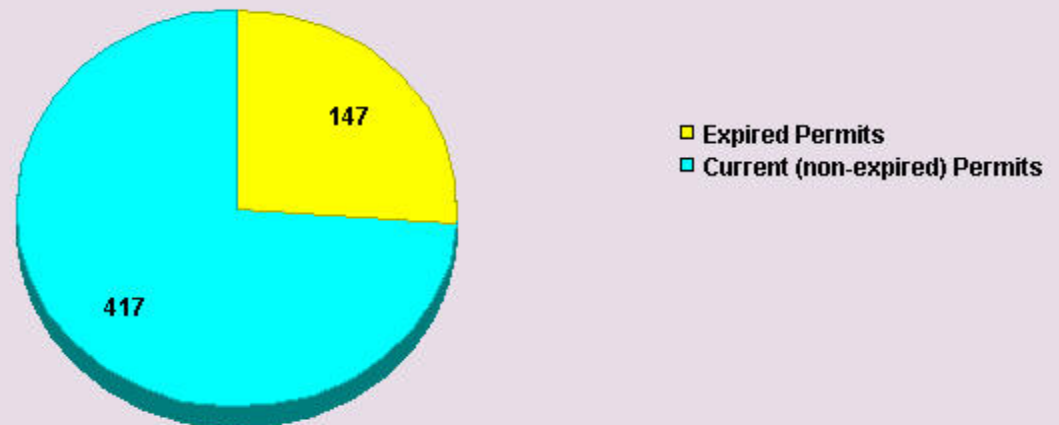
- Spatial and attribute overlaps identify NPDES permits “at risk” or “likely” to contribute to impairing a water’s designated use
- Used to prioritize re-issuance of expired NPDES permits
- Used for Total Maximum Daily Load development and management

Permit Characterization

**Major Facilities Covered by Individual Permits
Located on Impaired Waters
That May Potentially Discharge a Pollutant
Contributing to an Impairment**



**Major Facilities Covered by Individual Permits
Located on Impaired Waters
Not Likely to Discharge a Pollutant Contributing to an Impairment**



Applications

- AskWATERS
- EnviroMapper for Water
- WEB Reach Indexing Tool (WebRIT)
- Drinking Water Mapping Application
- Window to My Environment (WME)
- Emergency Operations Center
- NEPA Assist

AskWATERS – Q&A Interface

Environmental Protection Agency - Microsoft Internet Explorer

U.S. Environmental Protection Agency

Watershed Assessment Tracking & Environmental Results System

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ASK WATERS

Questions

Click [here](#) to find your question based on applicable program, keyword, or metadata search.

NOTE: Click on the displayed Question to start your AskWaters Query!

Question	Report Description	Associated Programs
How many TMDLs have been completed since 1/1/1998?	Shows counts of Approved or Established TMDLs (Total Maximum Daily Load) with a corresponding chart. National, Regional and State reports are available.	Total Maximum Daily Load (TMDL) / NTTS, Water Quality Standards / WQSDB
How many Waters have been assessed as Impaired, Threatened, and Good?	Based on 2000 state assessments, a water quality inventory of the assessed waters of the United States detailing supporting, threatened, and impaired water uses.	Water Quality Inventory / NAD / 305(b)
How many waters are listed as impaired by were assessed as supporting their designated use(s)?	An inventory of waters identified by a spatial overlap between 303(d) impaired waters and 305(b) assessed waters that have attained water quality standards. These waters are now meeting water quality standards and should no longer be impaired.	Total Maximum Daily Load (TMDL) / NTTS, Water Quality Inventory / NAD / 305(b)
What is the inventory (count and size) of waters of interest to EPA?	Inventory of Water Systems that are Spatially Indexed	BEACH program, Safe Drinking Water / SDWIS, Total Maximum Daily Load (TMDL) / NTTS, Vessel Sewage Discharge / NDS, Water Quality Inventory / NAD / 305(b), Water Quality Standards / WQSDB
How many Drinking Water Intakes are on impaired waters?	Number of Drinking Water Intakes on Impaired Waters	Safe Drinking Water / SDWIS, Total Maximum Daily Load (TMDL) / NTTS
What are the impairments on impaired waters that are sources for drinking water intakes?	Impairments on Waters that are sources for Drinking Water Intakes	Safe Drinking Water / SDWIS, Total Maximum Daily Load (TMDL) / NTTS

AskWATERS – Q&A Results

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U.S. Environmental Protection Agency

Watershed Assessment Tracking & Environmental Results System

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Ask Waters Results


Geographic Area = STATE
Geographic Values = WA

Impairments on Waters that are sources for Drinking Water Intakes

Page No. 1

REGION	STATE	WATER_BODY_NAME	IMPAIRMENT_DESCRIPTION	MILES_OVERLAP	MAP_303D	REPORT_303D	REPORT_DWI	ID_DWI	LIST_ID
10	WA	GREEN RIVER	TEMPERATURE		MAP 303 (d)	303(d) REPORT	SDWIS REPORT	WA5386800_5164233	WA_ABE
10	WA	GREEN RIVER	TEMPERATURE	0	MAP 303 (d)	303(d) REPORT	SDWIS REPORT	WA5386800_5164233	WA_ABE
10	WA	CHEHALIS RIVER	FECAL COLIFORM	0	MAP 303 (d)	303(d) REPORT	SDWIS REPORT	WA5312250_5157410	WA_DS2
10	WA	CHEHALIS RIVER	TEMPERATURE	0	MAP 303 (d)	303(d) REPORT	SDWIS REPORT	WA5312250_5157410	WA_DS2
10	WA	CHEHALIS RIVER	FECAL COLIFORM	0	MAP 303 (d)	303(d) REPORT	SDWIS REPORT	WA5312250_5157410	WA_DS2
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10	WA	CHEHALIS RIVER	TEMPERATURE	0	MAP 303 (d)	303(d) REPORT	SDWIS REPORT	WA5312250_5157410	WA_DS2
10	WA	CHEHALIS RIVER	TEMPERATURE	0	MAP 303 (d)	303(d) REPORT	SDWIS REPORT	WA5312250_5157410	WA_DS2
10	WA	CHEHALIS RIVER	TEMPERATURE	0	MAP 303 (d)	303(d) REPORT	SDWIS REPORT	WA5312250_5157410	WA_DS2

AskWATERS Invokes EnviroMapper

 United States
Environmental Protection Agency

EnviroMapper for Water

[Feedback](#) [EM Home](#)

DISPLAY

LABEL ALL

ACTIVE

MAP FEATURES

☐ [Facilities](#)

☐ [Community Landmarks](#)

☐ ☐ ☐ [Nutrient Stations](#)

☐ ☐ ☐ [Water Quality Stations](#)

☒ ☐ ☐ [Streets](#)

☐ ☐ ☐ [ZIP Codes](#)

☐ ☐ ☐ [Congressional Districts](#)

☐ ☐ ☐ [Watersheds](#)

☐ ☐ ☐ [Federal Lands](#)

☐ ☐ ☐ [Tribal Lands](#)

☐ ☐ ☐ [Aggregate Ecoregions](#)

☐ ☐ ☐ [Level III Ecoregions](#)

☒ ☐ ☐ [Counties](#)

☒ ☐ ☐ [States](#)

☒ [Surface Waters](#)

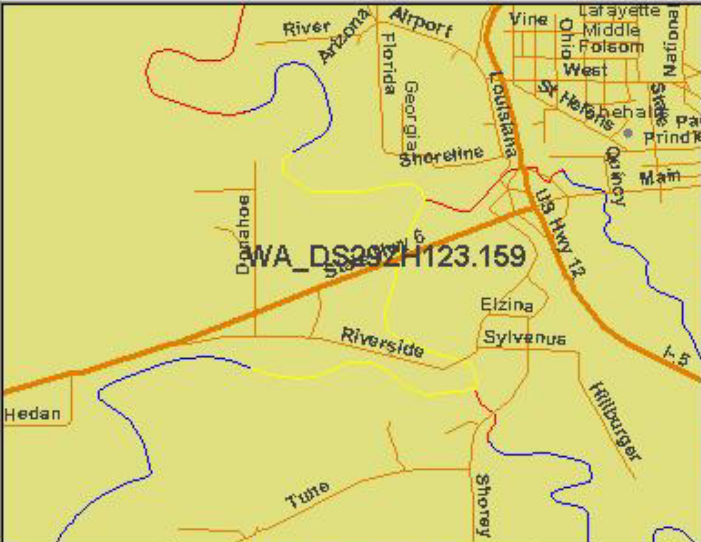
☒ ☐ ☐ [Impaired Waters](#)

☐ ☐ ☐ [Water Quality Standards](#)

☐ ☐ ☐ [Assessed Waters](#)

☐ ☐ ☐ [Beaches](#)

☐ ☐ ☐ [Sewage No Discharge Zones](#)



2 Miles Wide (Local)

Click on map to:

☐ Zoom

☐ Zoom to Area

☐ Recenter Map

☐ Show Location

☒ Identify Active Feature

☐ Add

☒ Locator Map

[Multi-color Menu](#)

[Zoom To Area Menu](#)

[Nutrient Criteria Query Menu](#)

EnviroMapper for WATER

- View increasingly detailed map features at national, regional, state and local levels
- 'Drill down' report of all water program features at a specific location
- Dynamic querying of water program databases that contain detailed information on individual map features, such as impaired waters

EnviroMapper for Water 3.0

EnviroMapper for Water - Microsoft Internet Explorer

File Edit View Favorites Tools Help

MAP FEATURES

DISPLAY LABEL ALL ACTIVE

- ☐ Facilities
- ☐ Community Landmarks
- ☐ Nutrient Stations
- ☐ Drinking Water Wells
- ☐ Water Quality Stations
- ☒ STORET
- ☐ Legacy Data Center
- ☐ Streets
- ☐ ZIP Codes
- ☐ National Estuary Programs
- ☐ Congressional Districts
- ☐ Watersheds
- ☐ Federal Lands
- ☐ Tribal Lands
- ☐ Aggregate Ecoregions
- ☐ Level III Ecoregions
- ☐ Source Water Areas
- ☒ Counties
- ☒ States
- ☒ Surface Waters
- ☐ Impaired Waters
- ☒ Water Quality Standards
- ☒ Assessed Waters
- ☐ Beaches
- ☒ Sewage No Discharge Zones
- ☒ Nonpoint Source Projects
- ☒ SAAP
- ☒ Drinking Water Sources

Update Map

STORET Water Quality Stations Features:

P-004-0007

Organization ID: 211WVOWR
Station Name: Eagle Run east of Martinsburg, W.Va.
Station type: Surfacewater

Other water program features located at click point:

Drinking Water Wells

WV3300244 5254023

Legacy Data Center Water Quality Stations

1112A9WQ/UP-POT-046

1113PPWQ/POTOMAC 043

Water Quality Standards

WV02070004 G

WVP-4-B

WVP-4

Assessed Waters

WVP-4-B QQ

Update Map

32 Miles Wide (Local)

Help

Click on map to:

- ☐ Zoom In
- ☐ Zoom to V
- ☐ Local
- ☐ Recenter M
- ☐ Show Local
- ☐ Identify Ac
- ☐ Add

Locator Map

Start New Map

EPA > STORET > STORET Station Home Page - Microsoft Internet Explorer

File Edit View Favorites Tools Help

U.S. Environmental Protection Agency

STORET

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Station: P-004-0016 Mill Creek south of Tarico Heights, W.Va.
Organization: 211WVOWR WV Div of Environmental Protection, Office of Water Resource

Station Information

Primary Type	River/Stream
Secondary Type	None
Latitude/Longitude	Latitude 39.312425, Longitude -77.9983667, NAD27
Elevation	0
State	WEST VIRGINIA
County	BERKELEY
Hydrologic Unit	02070004, Conococheague-Opequon.

Number of Results

Dissolved oxygen (DO)	1
Escherichia coli (E. coli)	1
Fecal Coliform	1
Specific conductivity	1
Temperature water	1
pH	1

WebRIT

- Internet based location reach address data (NHD reach address, lat/long) collection tool
- Password protected by program and state or other area
- Reduces data collection costs and improves consistency
- Initial programs include Beaches and Non-Point Source



WebRIT WATERS: Locational Data Tool

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Layers

Expand All Groups Collapse All Groups

- ☒ NEW EVENTS
- ☐ EXISTING EVENTS
- ☒ NATIONAL HYDROGRAPHY DATASET
 - ☒ Watershed
 - ☒ NHD Streams/Rivers/Coastlines
 - ☒ NHD Waterbody Reaches
 - ☐ Other NHD Waterbodies
- ☒ BASE MAPPING

Enter ID Information for the Item Being Reported:

Select from the Name or ID dropdown to assign an ID for the information being reported.

Name: HENSON CREEK AT OXON HILL, MD

ID:

ID: 01653500 Stat 0148471320

01484710

IS

1. General Info

Title: USGS streamgages linked to NHD

2. User Info

3. Source Info

Source 1: NWIS-200304

Annotations

Longitude: -76

Web Services

- Upstream/Downstream
 - Provides water program data above or below a point on the network
- Total Waters
 - Provides count/sums of water information
- Mapping
 - Provide RAD-based map images or individual features
- Water Program Identify
 - Provides program water program data for a location on NHD stream network

Training and Outreach

- Cross-program coordination role
 - Team-level
 - Regions
 - State/Tribal partners
- On-site training to HQ, Region and State clients
- On-line tutorials for applications
- Comprehensive technical support
 - waters_support@epa.gov
 - 1-800-844-0638

What's in the Works?

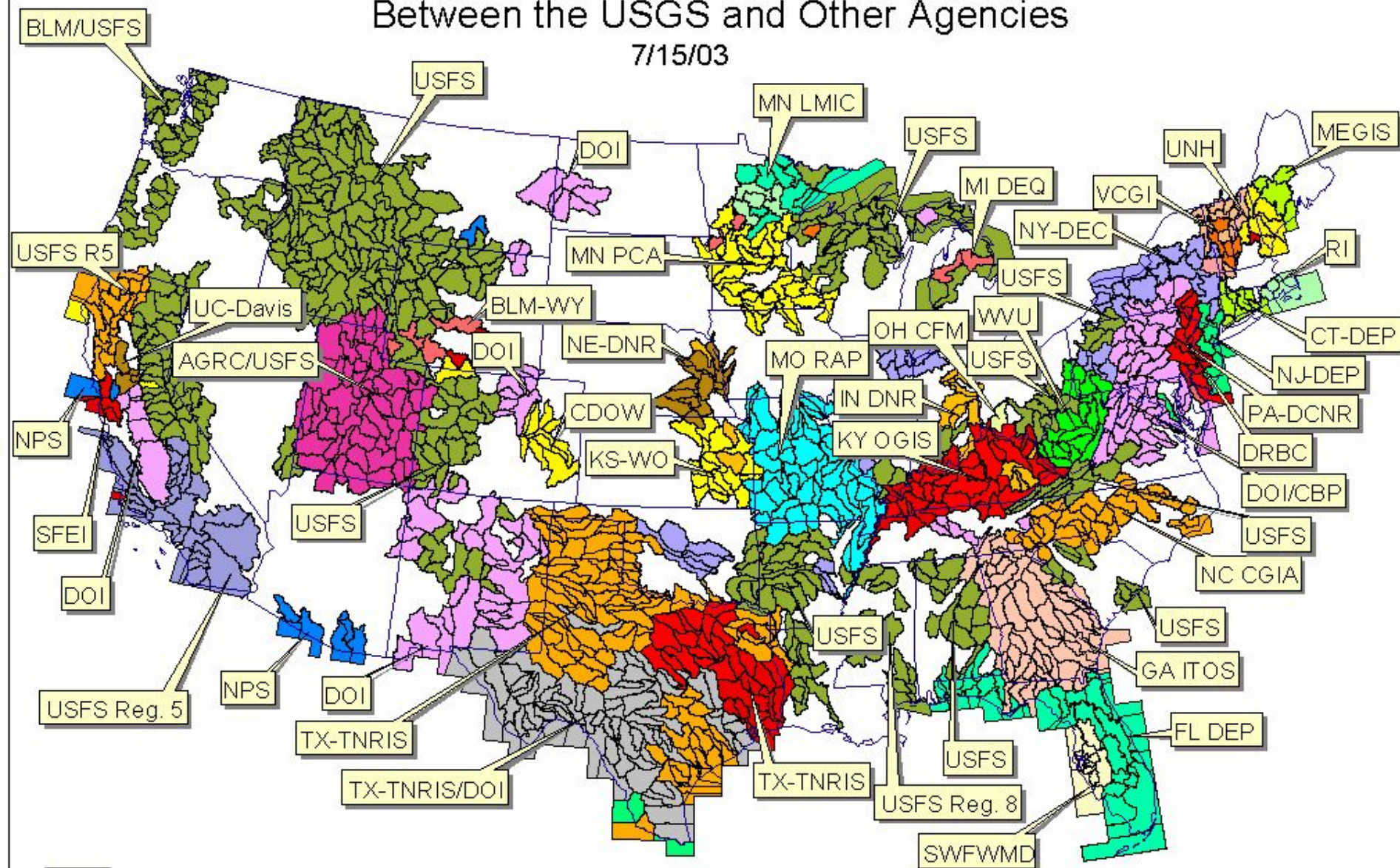
Enhancing the NHD Framework

- Value-Added Attributes
- Reach Catchments
- Flow Volume & Velocity Estimates
- High Resolution NHD

***The National Map* Hydrography Partnerships**

Between the USGS and Other Agencies

7/15/03



More on What's in the Works?

- Geospatial One-Stop Hydrography Standard and associated Central Data Exchange (CDX) template for linked data
- New data including Clean Water Needs Survey, Special Appropriation Act Projects, USGS gaging stations, COE dams
- Releases of WebRIT, EnviroMapper, AskWATERS, Services

Summary

- WATERS framework established
- More data available, more analyses possible, with greater access
- Enabling Informed Decision-Making

Find out more!

www.epa.gov/waters

Join us at:

- American Water Resources Association Conference - GIS and Water Resources
 - May 17-19, 2004 in Nashville, TN
- Environmental Systems Research Institute International GIS User Conference
 - August 9-13, 2004 in San Diego, CA